

The National Association of Radio and Telecommunications Engineers, Inc.

NARTE NEWS



Volume 20

SUMMER 2002

Number 2



Volunteer Hams Provide Emergency Telecommunications Support During Summer Wildfires Raging Through Southwest

(See story page 5)

EDITORIAL: Surge in NARTE Activity Worldwide

NARTE's membership has been on the move in the last few years and it is even more apparent this year through the activities of individual members to extend excellence in their chosen professions. For example . . .

Membership and Board Activities

The volunteer Hams' unpaid performance in supporting telecommunications in the fast-paced action surrounding this year's summer wildfires is a case in point.

The cover story on page 5 describes the actions of the Amateur Radio Relay League (ARRL) and Amateur Radio Emergency Service (ARES), including NARTE members, in responding and working with various government organizations fighting the firestorms still raging in the west. They train among themselves for these critical activities—feeding lessons-learned experiences into their annual training exercises across state lines, then acting as key members of the command centers controlling and coordinating actions when these disasters strike.

On the NARTE homefront, an active Board and Headquarter's staff has been nourishing the organization, streamlining the bylaws to better serve the membership, feeding individual ideas into overall organizational improvements, as well as providing increasing support to the membership through individual committee actions. Your Board continues to keep NARTE "in the black" financially (See statement to the right).

Members all must agree with these support activities and the importance, professionally, to achieve and maintain NARTE membership, since the membership renewal rate among existing members is higher than usual, and new members continue to come on board.

As an example, NARTE's Japan EMC testing activity has a 100 percent NARTE membership renewal rate while sustaining an approximate 30 percent annual growth factor. This demonstrates how local NARTE organizations can help sustain organizational excellence by using NARTE-mandated testing to validate capabilities and obtain certification credentials.

In this regard, Mr. Shin-ichiro Kudo has been presented NARTE's Marconi-Bell award for his role in the formation and growth of the NARTE Japan activity (See page 9). NARTE's cooperative alignment with the IEEE is providing another forum for studying and for taking the EMC certification test at this year's annual International EMC Symposium (See page 10, NARTE Events Calendar).

In related activities, the ongoing battle to keep military control of strategic and tactical frequencies necessary for national defense continues, as is eloquently discussed in Mr. Ryan's article on page 6, and the FCC formation of a Spectrum Policy Task Force (page 14). The Federal mandates to buy only devices meeting new accessibility standards are very real, as described in the AAES column announcing a compliance work shop at this year's IEEE symposium (page 10).

And lest we forget where our technology came from, Don Kimberlin's continuing series on "Jurassic Telecommunications" gives us an historical perspective (page 12).

Taking Stock in Mid-Year

As you and NARTE surpass the halfway point in this year, the Board and staff are asking you, the membership, to take a more active organizational role as well. By responding to the surveys included with your renewal forms and by providing feedback and suggestions, your voices can be heard.

And like any organization, we need even more members to sustain and add new support activities that come with growth economies of scale. So please act as NARTE's emissaries in your own organizations, encouraging your coworkers and qualified associates to apply for NARTE certification. Information packages from www.narte.org can be obtained to start the process.

Lastly, your submission of articles and technical information for publication in the *NARTE News* is a quick way to share technical and other information with the various NARTE sub-organizations, and with your peers.

The Board and staff appreciate your help in sustaining NARTE's excellence through your personal performance on the job. Keep up the good work, and let NARTE Headquarters know if there is anything that, organizationally, you think should be addressed to help better serve the membership. Have a safe and active summer! (Ed.)

THE NATIONAL ASSOCIATION OF RADIO AND TELECOMMUNICATIONS ENGINEERS, INC. STATEMENT OF FINANCIAL POSITION December 31, 2001

CURRENT ASSETS

	Unrestricted	Temp. Restricted
CASH	\$ 101,395	\$ 5,136
BUILDING & EQUIPMENT, NET	\$ 179,038	\$ -
TOTAL ASSETS:	\$ 280,433	\$ 5,136

LIABILITY AND NET ASSETS

CURRENT LIABILITIES

Accounts Payable	\$ 11,309	\$ -
Current Portion of Long-Term Debt	\$ 1,140	\$ -
Deferred Membership Dues - Current	\$ 43,548	\$ -
	<u>\$ 55,997</u>	<u>\$ -</u>

OTHER LIABILITIES

Long-Term Debt	\$ 22,016	\$ -
Deferred Membership Dues	\$ 16,489	\$ -
	<u>\$ 38,505</u>	<u>\$ -</u>

TOTAL NET ASSETS **\$185,931** **\$ 5,136**

TOTAL LIABILITIES & NET ASSETS **\$280,433** **\$ 5,136**

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NATIONAL ASSOCIATION OF RADIO AND TELECOMMUNICATIONS ENGINEERS, INC.

Headquarters Highlights: Summer 2002

NARTE Annual Membership Meeting

The 2002 NARTE annual membership meeting was held on Saturday, May 4th at NARTE headquarters in Medway, MA. Highlights of the meeting included a visit from Mr. Shin-ichiro Kudo and Dr. Reiichi Sasaki of the NARTE/Japan review committee, who were invited to observe the proceedings of the committee reports at the board meeting. Mr. Kudo was presented with the Marconi-Bell Award by President James Wickham (See page 9). NARTE business included considerations of bylaws revisions, the creation of an audit committee, ISO accreditation, member benefits, and the long-term NARTE plan for relevance.

2002 EMC CD ROM

The number one study guide for the NARTE EMC exam has been expanded to a new, user-friendly CD version. NARTE's CD ROM EMC Guide has more sample exam questions than the print version and includes extra features such as a tutorial on the EMC Certification program and a presentation of test-taking tips. The new CD has been released, along with the 2002 edition of NARTE's EMC Study Guide, in time for the NARTE EMC examination session at the IEEE EMC Society Symposium.

BYLAWS Updates Prompt Special Meeting

NARTE has not overhauled its bylaws for years. Some minor changes have been made to reconcile and harmonize the text, but it has been a long time since the bylaws were reviewed to align them with how NARTE is currently doing business that best suits its membership. The Board has asked for a substantial review and realignment for presentation to the membership at the October 5, 2002 meeting in Camden, Maine (See Notice, previous page).

NARTE/Japan CRC Meeting

Representatives Shin-ichiro Kudo and Dr. Reiichi Sasaki met with Laura Holmberg, Operations Director and Russell Carstensen,



Left to right: Shin-ichiro Kudo, Secretariat of the NARTE/Japan EMC Committee; Dr. Reiichi Sasaki, Chair of the NARTE/Japan EMC Committee; Russell Carstensen, NARTE Executive Director; and Laura Holmberg, NARTE Operations Director.

Executive Director on May 3, 2002 at NARTE Headquarters in Medway, MA (See photo above). Among the items discussed were the results of the last EMC Certification examination session in Japan.

The session, held in Tokyo and Osaka on November 22, 2001, was the first EMC Technician examination administered by the NARTE/Japan Committee. Cultural differences did, however, slant the examination results.

We learned that the Japanese, for example, do not use "all of the above" as an acceptable answer to a multiple choice question. Some examinees were misled by this and jumped prematurely to one of several correct answers. Analysis of the exam results will be considered in the future development of EMC courses of study in Japan.

The NARTE/Japan Committee is maintaining their ambitious schedule of EMC education in 2002, as follows:



NARTE OFFICERS AND DIRECTORS: Back row, left to right: John Holmberg, Second Vice President; John Christensen, Director; Lawrence V. Behr, Director; James Wickham, President; Kimball Williams, Director; Dr. Reiichi Sasaki, Chair of NARTE/Japan; Shin-ichiro Kudo, Secretariat of NARTE/Japan; Roger Hottman, Director; Dr. Willie K. Ofosu, Director; David A. Case, Director; H. Stephen Berger, First Vice President. Front row, left to right: Laura Holmberg, Operations Director; Gary Dorsay, Director; Russell Carstensen, Executive Director; Michael Hayden, Director; Garry Gorr, Director; and Louis T. Gnecco, Director.

APRIL 5, 2002 <i>CRC meeting of about 30 members in Osaka</i>
JULY 5, 2002 <i>One day practical course on EMC</i>
AUGUST 19-23, 2002 <i>Participation in the IEEE EMCS Symposium</i>
SEPTEMBER 6, 2002 <i>One-day training for EMC Engineer candidates in Osaka</i>
SEPTEMBER 13, 2002 <i>One-day training for EMC Technician candidates in Osaka</i>
OCTOBER 16-18, 2002 <i>Lecture of EMC measuring methods at KEC-EMC Measuring Center</i>
OCTOBER 3-4, 2002 <i>Arts and Science Seminar on EMC at Kyoto</i>
NOVEMBER 22, 2002 <i>NARTE EMC Engineer and Technician examination in Osaka & Tokyo</i>

Headquarters Highlights continued

Ronnetta Mosby Scholarship

During the fall of this year the NARTE Chapter at the School of Technology, North Carolina Agricultural and Technical State University, lost a member by the name of Ronnetta Mosby, in a car accident.

Ronnetta was NARTE's Vice President-Internal Affairs and Organizational Queen. She was an outstanding Electronics and Computer Technology major with a grade point average of 3.5.

In her memory, NARTE has created the Ronnetta Mosby scholarship. Students interested in the scholarship must meet all the requirements of the scholarship criteria defined below.

Final decisions will be made by the scholarship committee, which consists of Jim Wickham, NARTE's president, Willette Mosby-Reynolds (Ronnetta's mom), two NARTE student chapter advisors (Dr. Dunn & Dr. Avery), and Russell Carstensen, NARTE's Executive Director.

Eligibility

1. Freshman, Sophomore, Junior, or Senior can apply
2. GPA of 3.5 or higher
3. Two (2) Letters of Recommendation
4. A 500 words essay explaining why you are the best candidate for this scholarship, why education is important to you, and how you plan to impact the field of technology.
5. Must be a member of NARTE

Candidates must be U.S. citizens enrolled full time at North Carolina Agricultural and Technical State University. Primary


consideration will be given to NARTE members with a GPA of 3.5 or better. Women and minorities are urged to apply. All applicants must be 2nd semester freshmen or above at the time of application. High school students are not eligible to apply.

NARTE HEADQUARTERS ADDRESS CHANGE

Years ago, when NARTE moved from Salem, Oregon to Medway, Massachusetts, we rented a Post Office Box. Over time we have become comfortably and permanently located in Medway, so we are eliminating our trips to the post office and the box rental, by settling on the Village Street address as our only address. So, from now on, please send all mail for NARTE Headquarters to:

NARTE Headquarters
167 Village Street,
Medway, MA 02053

Surveying

As part of the renewal process, NARTE has been surveying members and a random sample of attendees at conferences in which NARTE participates. The information that we accumulate will help us determine how to enhance relevancy of NARTE certification both to members and to their employers. Survey data is essential for our planning to better serve our membership, so when you receive your renewal form, please be sure to return the survey form as well. 

NARTE Chapter News



Spring 2002-2003 NARTE NCA&T Student Chapter Board of Directors: Shaun Williams-Secretary; Angela Marks- Treasurer; Michael Wright-Vice President Internal; Latoya Spells-President; and Vernita Bryant-Vice President External.

During the 2001-2002 academic year, members of the NARTE student chapter at North Carolina Agricultural and Technical State University, Greensboro, NC, participated in numerous community activities, including the Winter Walk for Aids and tutoring at local elementary and middle schools. Additionally, the student chapter formulated a program in which they provide mentoring services to students involved in after-school programs.

Several members are working toward certification in A+, Net+, Microsoft, and Certified Internet Webmaster.

On March 28, 2002, the student chapter board of directors and their advisors met with NARTE mentors Steve Chesney from IBM and David Bench from Nortel Networks. It was a productive meeting and included discussions about the corporate environment and how the NARTE mentors could become more involved with the student chapter.

NOTICE-NOTICE-NOTICE Special Membership Meeting

In accordance with NARTE's bylaws, this serves as formal notice of a Special Membership Meeting to present recommendations to the membership for a vote on proposed changes to the bylaws. The meeting is being held at the MBNA facility in Camden, Maine, on October 5, 2002. NARTE's bylaws state:

"The bylaws of the association may be altered, amended, or repealed and new bylaws adopted by the vote of the majority of the members at any meeting of the Association; provided that notice of any such proposed modification or amendment shall be included in the notice for the meeting."

If you plan on attending, please contact NARTE Headquarters for directions from the nearest airport, and for specific time and room location.

CALENDAR OF COMING EVENTS

19-23 August 2002
2002 IEEE International Symposium on EMC
Hyatt Regency Minneapolis, MN
32515 Nottingham Court
PO Box 712
Lindstrom, MN 55045
POC: Mr. Daniel D. Hoolihan
Phone: 612-638-0258 • FAX: 612-638-0285
E-mail: dhoolihan@tuvps.com

CORRECTION

In the NARTE NEW CERTIFICATIONS IN 2001 in the Spring 2002 issue of NARTE NEWS, Mr. Shinichi Yokoi was listed as an EMC Technician. Mr. Yokoi should have been listed as a new EMC Engineer.



Volunteer Hams Provide Emergency Telecommunications Support During Huge Colorado and Arizona Fires

NEWINGTON, CT, June 25, 2002—Amateur Radio Relay League (ARRL) Colorado Section Manager Jeff Ryan, KORM, reports that more than 70 Amateur Radio Emergency Service (ARES) team members provided front-line support in the face of the Hayman Fire—now being called the largest fire in Colorado’s history. Ryan says 400-plus firefighters aided by aerial tankers and helicopters battled the blaze in the Colorado mountains southwest of Denver. Though support to this fire has concluded, it has moved to a new fire, now less than three miles from picturesque Durango, Colorado, with the smoke so dense at times that the street lights have come on at noon.



Pikes Peak ARES Assistant Emergency Coordinator Mike Allen, NOMIK (right), briefs Roger Foust, KE6ZOT, while Charlie Davis, KW4O, monitors for traffic at the Hayman Fire Incident Command Post. [KGOVY Photos]

“This is Amateur Radio at its finest,” Ryan said. “Operators are working shifts in sometimes harsh conditions, driving many miles home to rest, then turning around to pull another shift, often in a completely different location.”

Both mandatory and voluntary evacuations have affected over 15,000 people. For the first time in history, the Pike National Forest has been closed to the public for all recreational purposes. Gov. Bill Owens has issued a ban on the sale and use of fireworks and all open fires of any kind statewide.

Ryan says served agencies with the Hayman Fire included the sheriffs offices in Douglas, Arapahoe, Jefferson and Teller counties; Mile High and Pikes Peak chapters of the

Red Cross; The Salvation Army; Jefferson County Incident Management Team; West Metro (Denver) 911 Center; and the Federal Type I Wildland Fire Incident Management Team Command Centers.

Amateurs from the Jefferson, Douglas, Park, Arapahoe, Pikes Peak, Boulder, Denver, Adams, Fremont and Pueblo ARES groups also participated.

Offers of assistance were received from individual hams outside of the state. Colorado Section Emergency Coordinator Mike Morgan, N5LPZ, said, “Since the different groups have drilled together in the past, coordination and cooperation between groups is seamless.” Nearly 4000 structures were threatened, although Ryan said the number actually destroyed is not clear.

Meanwhile, some 150 miles west of Denver, the Coal Seam Fire near Glenwood Springs has burned 10,000 acres and destroyed 28 homes. “Most residents were allowed to return to areas previously evacuated as cooler temperatures and decreasing winds allowed firefighters to gain ground against the blaze,” Ryan said on June 12. Eleven hams from Garfield and Eagle ARES groups have been supporting Red Cross shelters in that area.

Drought conditions have plagued several western states, including the now merging fires in Arizona. Smaller fires continue to burn there. The US Forest Service has rated the fire danger in these states in the high to extreme categories.

HAM Radio Operators Conduct Organized Training For Emergency Communications Role

ARES, the Amateur Radio Emergency Service, is an ARRL-sponsored group at the local level. There are 43,000 ham radio operators around the USA who belong to ARES. As part of an ARES network, volunteers will be called to support emergency activities ranging from equipment logistics, victim location and identification, emergency shelter, food and water information, medical equipment and material distribution, and, sometimes, life-and-death communication.

During emergencies, such as the Colorado fires, local and Ham radio operators work with community organizations and agencies such as the Red Cross and Salvation Army, relaying vital communications in a structured and accurate manner. The communications, for example, are messages that contain such things as what type

of medical expert is needed for injured workers at a disaster site, the number of sand bags needed by emergency workers during floods, and so on.

Each ARES local unit has a leader called the Emergency Coordinator. Each region has a District Emergency Coordinator, and each state has a Section Emergency Coordinator.

Hams practice their skills on the air and during group training in order to ensure that emergency communications are timely and efficient. They learn to be skilled at composing and relaying messages by voice and through computer-based Amateur Radio communications modes. (These modes deliver required written information via computer without need for Internet capability.) Hams have their own equipment that they bring to emergency sites; they are totally self-sufficient.

ARES groups plan on-going training drills, communications practice sessions (simulated emergencies), and non-emergency community events to maintain and practice emergency preparedness skills. Once a year they participate in the nationwide ARRL Simulated Emergency Test.



Brian Badger, NOKZ, monitors while his wife, Lynn, KD4WBA, copies traffic at the Red Cross shelter in Woodland Park, Colorado. The radio equipment shown is the portable emergency station provided by the Mountain Amateur Radio Club. [KGOVY Photos]

Editor’s Note: This article was extracted from stories by Rick Lindquist originally appearing on the ARRL web site (www.arrl.org/news/stories). Additional information was provided by Mark Wilson, KIRO & Rosalie White, K1STO. Photos were provided by Philip H. Murdy, KGOVY.



Part 15 Devices—A Growing Threat to the Department of Defense’s Lawful Use of a Diminishing Spectrum Asset

A “Catch-22” Situation exists, whereby the weak FCC Part 15 application and enforcement of what constitutes harmful interference from/to largely commercial devices operating in DoD frequency bands, false “interference-free” expectations of commercial users of these devices, and no responsible government activity tasked to review and respond to complaints, once again puts the military in a “bad guy” position when they are not at fault.

The Bremerton Incident

From Thursday, 21 March 2001, at 4:00 PM, to Monday 25 March 2001, at 4:30 PM, the remote keyless entry systems on nearly every vehicle in the Bremerton-Port Orchard, WA, area stopped working. Every area car dealership was inundated with hundreds of calls from irate customers. Speculation as to the cause initially ranged from solar flares to terrorists to the MIR space station. Finally someone noticed the problem started at the exact time the USS CARL VINSON (CVN 70) returned to her home berth in Bremerton from seven weeks at sea, causing the locals to suspect rogue radio transmissions from the ship were to blame.

While thorough investigations by both the U.S. Navy (USN) and the Federal Communications Commission (FCC) were unable to identify a culprit, most observers - including this jaded DOD (Department of Defense) frequency manager - are convinced that the USS CARL VINSON was the interference source. But was the USN at fault? To understand this conflict and its future implications to every DOD frequency manager, we have to take a closer look at the growing use, the phenomenon, of “Part 15 devices.”

What Are Part 15 Devices?

Not all equipment that generates radio frequency (RF) energy is required to have a license or assignment.

To facilitate the continued, expeditious development and deployment of new wireless devices for businesses and consumers (and avoid burdensome book-keeping), the FCC composed “Part 15” of Title 47 of the Code of Federal Regulations. This chapter defines and regulates a class of “low power unlicensed devices” that generates RF energy whether it is *intentional*, *unintentional*, or *incidental*. An *intentional* radiator intentionally generates RF- energy and emits it either by radiation or by induction during its operation. This is a “transmitter” regardless of the frequency or power level. An *unintentional* radiator also generates RF energy, but it is for use within the device with no intention that it be radiated. An example would be the local oscillator in a TV receiver or a microwave oven. *Incidental* radiators are RF energy generators only as a byproduct of operation. Some types of motors are incidental radiators.

Since these devices are convenient and, in most cases, readily available to the public, their use is spreading rapidly. The following sample list will give an idea of the variety and proliferation of Part 15 technology.

- * Baby Monitors
- * Cordless Telephones
- * Computers
- * Wireless Mouses
- * Remote Keys
- * Radio Controlled Toys
- * Wireless Headsets
- * Garage Door Openers
- * Dog Trainers
- * Low Powered Walkie-Talkies
- * Scanning Receivers
- * Invisible Fence Systems
- * Security Alarm Systems (motion & heat detectors)

Because of their limited, ultra-low power outputs they are permitted to operate in almost all the radio frequency bands. While Part 15 devices require no license, they do require FCC approval before sale. The FCC rules require the equipment manufacturer or importer to design and test his products to ensure that they do not exceed the absolute maximum limits. To obtain certification, a manufacturer supplies test data to the FCC, usually from a laboratory that the FCC knows and trusts. The certification is usually issued on the basis of the test data and other information about the product. In a Declaration of Conformity, the manufacturer issues a formal statement to the FCC that the device

has been tested at an accredited laboratory and that it complies with the rules.

Although the FCC can call in equipment for testing, in almost all cases the FCC does not actually perform testing on equipment covered by Part 15. In other words, these devices are manufactured and deployed under an “honor system.” In addition, the FCC requires Part 15 devices to be operated in such a way that they not cause harmful interference. The operator of the Part 15 device is responsible for correcting the interference or to stop using the device if so ordered by the FCC.

The Bottom Line

A Part 15 device *must not* cause harmful interference to other radio services and *must* accept any interference caused by the legal operation of other radio services.

Now that you know the rules governing Part 15 devices, you’re probably asking, “What’s the problem?” After all, although these unlicensed radiators are permitted to operate on nearly any frequency, they radiate at such low levels of power as to be totally



innocuous. If they somehow do conflict with authorized users, they are obligated to shut down. At least this is the theory, the basis, and the foundation of the Part 15 universe. But in reality there are two problems. First, Part 15 devices *can* interfere with the DOD. Second, the DOD *can* interfere with Part 15 devices.

Them vs. Us

I don't care what power limitations these devices have; if they are close enough to sensitive equipment, they can interfere. Signals from cell phones, portable radios and digital TV stations sometimes cause medical equipment to malfunction in hospitals. Cardiac monitors, pharmaceutical delivery devices, and neonatal radiant heaters have proven to be susceptible to the problem.

Three years ago at Naval Air Station (NAS) Patuxent River, MD, an antenna pattern measurements flight was held on the ground until a direction-finding van could find and suppress an interfering signal on one of the test frequencies (49 MHz). The source was a baby monitor at a nearby officer's housing complex. The van crew had to ask the new mother to switch off her crib transmitter so they could launch their aircraft!

Even if one certain device proves incapable of causing problems, what if there are dozens, or hundreds in the same confined area? Wireless motion/fire detectors to protect unmanned buildings from intruders and fire are very popular. But what if a single contractor installs perhaps hundreds of identical devices in a single compound involving several dozen buildings, all of them chirping happily away on the same frequency? Both the noise floor and the potential for conflict with a nearby licensed user are sharply raised.

It can and has happened. A commercial airliner flying over Colorado in 1993 lost its directional gyros at cruising altitude because about 25 passengers had portable radios tuned to a Denver Broncos playoff game. The radios' signals, though very weak, were strong enough to disable the gyros. When the radios were turned off, the gyros resumed functioning.



Us vs. Them

DOD systems have interfered with these devices, and sometimes on a mass scale with wide publicity. In February 2000, the USS ABRAHAM LINCOLN (CVN 72) created electronic chaos when it pulled into Santa Barbara, CA, for a port call. The ship's antennas and electronic gear disrupted keyless remote entries for vehicles within an eight-mile radius of the waterfront. But that's not all. The emissions also triggered car alarms and caused remote-controlled garage doors all over the city to malfunction. Radio emissions from the ship even shut down some vehicles' electronic ignition systems, according to a report in the local newspaper, the [Santa Barbara News Press](#). Ship's officials apologized and did everything they could to minimize the problems, but the electronic disruptions continued until the ship pulled out of port several days later.

Other incidents have been less well-publicized but still irksome for those affected. At NAS Oceana, VA, it's commonplace for keyless remote devices to fail, possibly due to powerful antennas or radar systems at the Station. Also, a few complaints have been registered about keyless remote devices failing inside Naval Station Everett, WA, when the attack carrier USS ABRAHAM LINCOLN is testing radar gear.

"But," you say, "the FCC rules are very clear. They're operating in *our* bands on a *non-interference* basis. We are not at

fault here; they have no right to complain."

Unfortunately, they do not *realize* that they have no right to complain. Almost all consumers (and not a few frequency managers) are oblivious to the limitations of, and restrictions to, these wireless toys. These people *do* know that they want to utilize them without being constrained by pesky, complex and obscure regulations, even those protecting DOD's allocated services. So as a conscientious DOD frequency manager, you have the unenviable task of going to those indignant neighbors and trying to explain why their pricey devices don't work, or worse, they must cease using their new property. What these folks will likely hear is that you are making the outrageous claim that items they just bought at a local store are in violation of federal law.

What is most ominous here is the growing potential for friction between DOD facilities and the citizenry that hosts them. In the case of the Bremerton incident, the irritation was overt as reported in the [Bremerton Sun](#): "Most responses sent to the [Bremerton Sun](#) reflect a widespread belief that the military presence is to blame for the disruption." In another [Bremerton Sun](#) article, Lt. Cmdr. Bill Fenick of the USN Northwest Public Affairs Office responded: "The Navy is concerned about electromagnetic interference issues, and we do look thoroughly into these issues to make sure we don't cause a problem in local communities." He was right to be concerned: DOD facilities are dependent on the goodwill of their local populaces to perform their missions, and indeed, to exist.

Solutions?

First, let's look at what we *can't* do. I have heard rumblings that some DOD facilities tried to take the easy way out; they attempted to appease local Part 15 users by agreeing to surrender use of certain "conflicting" frequencies. In a [Bremerton Sun](#) article, in reference to the Bremerton incident, the FCC's Seattle District Director, Mr. Dennis Anderson, stated: "The Navy is licensed to use those frequencies. By their kindness and their desire to be a good neighbor they've chosen not to operate on those frequencies while in port."³

I disagree! The sanctity of our spectrum assets, our protected allocations, *must be maintained*. The DOD has lost enough spectrum to the commercial world through reallocation in the past decade as it is. Voluntarily surrendering domain of these channels would be shortsighted and pernicious. Dig in your heels; there must be no concessions to, or accommodations of, Part 15 devices.

Second, forget licensing these devices. In general, the National Telecommunications and Information Administration (NTIA) believes that licensing would make it more difficult for individuals to obtain and use Part 15 systems. Licensing includes formal procedures for considering a device's ability to operate compatibly with other users. Moreover, it requires users to understand, to varying degrees, system operation and regulatory procedures. These characteristics of licensing limit the operational flexibility and the administrative convenience that the FCC intended in Part 15. If such devices had to be licensed, the sheer numbers of users of devices that radiate intentionally, such as cordless phones, door openers, and baby monitors, would place a tremendous administrative burden on the FCC. Furthermore, many nonlicensed systems do not radiate intentionally, or can be moved to any location. Therefore, licensing would not necessarily ensure compatibility.



EMC Post Cards—From the Wireless Side

Greetings from Washington, DC. No, I did not move, I have just been spending a lot of time here working with the various preparation groups who are addressing issues for the World Radio Conference 2003, as well as other spectrum issues.

Spread Spectrum NPRM Draft Approved

On May 16, the Commission approved the final draft of NPRM 99-231 dealing with spread spectrum and digital transmission requirements under 15.247. The actual requirements were posted on the FCC website on May 30. As part of the 99-231 report, the FCC rejected the new proposed spurious emission limits requested by Sirius. The reason for the FCC rejection was that there were no specific interference issues Sirius could actually cite. The Commission stated that Sirius should address any real interference issue on a case by case basis as other services do.

Part 15 & Other FCC Activities

Part 15 transmitter manufacturers and users, and some Part 90 transmitter users may wish to note the following. The ARRL has filed a petition with the FCC that could result in the final decision being decided in court. The ARRL is questioning the FCC right to authorize Part 15 transmitters without an individual license being required. The problem is that the decision by the court may affect Part 15 transmitters in general operation without individual licenses.

The FCC also released the rules on Ultra-wide band technology under Part 15. These rules are under a new section Part 15 F. However, the FCC soon found itself in Congressional spotlight over this issue. The problem was not Congress' lack of approval, but that the power levels they approved would hinder the technology deployment in some cases.

A proposal has also been filed by some of the 900 MHz licensed band users to transfer the 902-928 MHz ISM band from unlicensed use to strictly licensed use by the year 2005. How this will affect ISM devices is not clear.

Part 15 Devices *continued from page 7*

Solutions!

An obvious stratagem is to initiate a preemptive "Educate the Locals" campaign. After all, most of the conflicts start with the device users being blissfully clueless to the responsibilities, possible constraints, and risks involved with ownership and use of these wireless tools. Like most of us, they neglect to "read the fine print." Get out the word via newsletters, websites, articles (like this) in local newspapers and periodicals, informal talks and formal briefings with community leaders and organizations.

If you feel you can muster the charm, visit local stores that sell large numbers of these devices and somehow persuade them to post prominent warnings beside the merchandise. Don't hold your breath on this; while it may be beneficial to the consumer to be notified up front of potential problems, the retailer will understandably be reluctant to scare away buyers, especially when they may be the only area store so civically minded. Besides, they reason, why should they be penalized if the buyer is too lazy to read the disclaimers included with the purchase?

Next, when you get complaints about "DOD interference," reply quickly and firmly; don't let them fester. Three years ago a local gentleman asked if NAS Patuxent River could change some of its aircraft control channels, which seemed to be nailing his

The FCC released the final report on the 98-80 1998 Biennial review addressing line conducted emissions.

The FCC decided not to address radiated limits for Carrier Current Transmitters at this time.

NARTE

The NARTE board of directors met back on May 4; see the *Headquarters Highlights* on pages 3-4 to catch up on the latest from the board of directors.


NARTE will be participating in the WCA show in Boston in June, and the IEEE EMC Symposium in August. Stop by to say hi to the NARTE staff.

WRC Conference Hosting Change

The march toward WRC 2003 continues as the US delegation and preparation committees prepare the various US positions. This conference originally was to be held in Venezuela in June 2003. This country, however, has withdrawn from hosting the event, and it has been rescheduled to be held in Geneva, Switzerland. Those interested can learn more information from the FCC International Bureau website.


RF Exposure

Later this summer the FCC is planning to release an NPRM that will address RF exposure. Some of the issues being addressed include Part 15.247 issues. The FCC may also consider modular approval issues in this document or a separate NPRM dealing only with Part 15.247.

One bit of additional good news is that China has rolled back the implementation of what would have been the strictest RF exposure limits. Because of industry pressure, the Ministry has postponed, for one year's time, the implementation of this standard until further research can be done. 

Please send comments, thoughts, or opinions to me at davecase@cisco.com.

garage door opener. I responded back within 90 minutes (in writing) why this was happening. I concluded my response with the following statement: "It would have been beneficial to its customers (though not to its profits) if your garage door opener seller had warned of the potential for problems while in proximity to DOD airfields. Sorry that I have no solution to your problem other than moving your garage a mile or two further away from the airfield."

Lastly, invest in fixed and mobile spectrum monitoring/interference control/direction-finding systems and personnel. While this is admittedly not inexpensive, the gear available today is 10 times cheaper and more compact, efficient, and reliable than it was 10 years ago. So bite the bullet. If you expect to retain and effectively utilize your precious spectrum assets, you'd better be able to regulate and defend them. 

References:

1. "Keyless Remote Entries: Mystery Outage Draws Attention," *Bremerton Sun*, 30 March 2001, by Lloyd A. Pritchett.
2. "Shared Frequency: Radio Band May Be Key to Keyless Mystery," *Bremerton Sun* 13 May 2001, by Lloyd A. Pritchett.
3. "Keyless Remotes: investigation into Outages Suspended With No Answers," *Bremerton Sun* 21 June 2001, by Lloyd A. Pritchett.

This article appeared in the ASPECTS EMCAP News, Vol. 14, 2002. Used with permission.

NARTE'S 2001 Marconi-Bell Award Presented To Mr. Shin-ichiro Kudo

Periodically, NARTE selects distinguished and eminent individuals whose work in telecommunications and related fields merits award of the Marconi-Bell certificate of distinction. This award is made to the engineer/technician who has made a major contribution to his or her respective field and is acknowledged by supervisors and peers as an outstanding practitioner whose performance is extraordinary. It is with pleasure that NARTE presents the Marconi-Bell award to Mr. Shin-ichiro Kudo. Mr. Kudo took over management of the NARTE EMC program in Japan after one year of development and has since been the driving force behind the success of this program. He has proven to be a meticulous implementer, who has the perseverance and the motivation to keep those already certified current (100%) and to provide the impetus and create the desire for individuals to become certified at the rate of approximately 40 per year.



Mr. Shin-ichiro Kudo (left) receiving the Marconi-Bell Award from NARTE President Jim Wickham (right).

Mr. Kudo has been the key man in an all important position with contacts at high level management in most of the EMC-related industries in Japan. He is an ardent believer in the NARTE EMC certification program and one who willingly, and at every opportunity, articulates the merit and prudence of individuals becoming NARTE certified. Mr. Kudo has successfully implemented the EMC Technician certification program in Japan following the success and the satisfaction of the engineering certification program.

NARTE is proud to recognize Mr. Kudo's achievements through presentation of its Marconi-Bell award. Congratulations!

2003 IEEE International Symposium on EMC Relocated to Istanbul, Turkey

The 2003 IEEE International Symposium on EMC has been relocated from Tel-Aviv, Israel to Istanbul, Turkey due to the ongoing current events in Israel. The dates of the Symposium have remained unchanged: May 11-16, 2003.

The slogan for the 2003 EMC Symposium is "Radiating Compatibility from the East" or "Ex-Oriente Radians" in Latin, alluding to the Byzantine period, where Istanbul (or Constantinople) was the center of the ancient world. Today, Istanbul is simultaneously an important and thriving attraction, as well as a modern business and industry metropolis. The International Organizing Committee is preparing an exciting top-notch technical program with something for everyone attending the Symposium: workshops, tutorials, special invited sessions and innovative "Meet the Expert" sessions. Special "Birds of a Feather" panels will be organized on stimulating topics.

We take great pleasure in inviting you to actively participate in this Symposium, which serves as a forum for engineers, technicians and scientists to discuss their personal views, theories and solutions to our volatile and exciting electromagnetic environment.

For updated information and details on paper submission, exhibition and patron opportunities, please visit our web site:

<http://www.orta.com/emc2003/>.

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DESIGNING FOR ACCESSIBILITY

AAES is Sponsoring a Workshop to Help Engineers and Product Planners Meet New Disability Access Regulatory Requirements

Major developments are taking place in regulations for disability access. Significant new regulations affecting Telecommunications and Electronic Information Technology equipment are being implemented, in particular:

- FCC Implementation of Section 255
- Federal Procurement Section 508
- EU Developments on Access Regulations

AAES Accessibility Compliance Workshop

The Association of Access Engineering Specialists (AAES) is presenting a special course and conducting an interactive workshop to address these regulatory issues on August 23, 2002, in conjunction with the IEEE International EMC Symposium in Minneapolis, MN.

Why this Workshop?

Many engineers and product planners are unfamiliar with the requirements of Section 255, 508 and Universal Design.

Recognizing this, a combined course and workshop has been developed to address one of the most important new developments in the IT & Telecommunications industries—Disability Access.

This workshop will give attendees an understanding of both the requirements and the technical knowledge necessary to design compliant products. In particular, it will provide an invaluable opportunity to gain guidance and discuss requirements and methodologies to assure that your products and services are compliant with Section 255 and Section 508 requirements.

It also will be an important opportunity to hear directly from a top expert regarding the latest disability access regulations.

The instructor leading this workshop is Mr. Stephen Berger. Mr. Berger served on the US Federal Advisory committees for both Section 255 and 508, and is a recognized expert in the design of accessible products.

Section 255

Section 255 of the 1996 Telecommunications Act requires that Telecommunications Equipment be designed to be accessible.

The FCC passed its rulemaking implementing Section 255. In a related action, the Access Board published guidelines for accessibility in telecommunications products and services.

Section 508

Under Section 508, as amended in February 1999, agencies of the

Federal government are required to purchase Electronic Information Technology equipment, which is designed to be accessible.

The US Department of Justice is required to monitor and report on the compliance of all federal agencies.

The Access Board is charged with writing standards to implement this mandate. To assist it, the Access Board convened an advisory panel, the EITAAC (Electronic Information Technology Access Advisory Committee).

Section 508 just passed its one-year anniversary. Compliance clauses are now commonly included in any government RFP or procurement specification. Technical compliance is coming under increased scrutiny.

Who Should Attend?

Those associated with, and responsible for:

- Human Factors, Engineering, Research and Development, and Product Development
- External Affairs, Consumer Affairs, Public Relations
- Government Relations, Regulatory Compliance
- Marketing, Market Research & Analysis, Product Management
- Marketing Communications, Advertising
- Customer Service & Support, Product Documentation

Agenda: 8:30-4:30, Friday, August 23, 2002

1. Welcome and Introductory Remarks
2. Disability Access Laws & Regulations
3. Enforcement Process
4. Technical Requirements - IT Products
5. Technical Requirements - Telecom Products
6. Technical Requirements - Software & Web
7. Disability Demographics
8. Design Tools and Resources
9. New Developments

Location

The workshop will be held on August 23, 2002 during the IEEE International EMC Symposium at the Minneapolis Convention Center in Minneapolis, MN.

To Register

To register or for more details on the AAES workshop, visit the AAES website at:

www.access-aaes.org
or call: 800-896-2783.

For specific technical or program questions, contact Mr. Stephen Berger at: SBerger822@aol.com

NARTE EVENTS CALENDAR

NARTE EMC Exams: During IEEE International EMC Symposium

Minneapolis, MN, August 19-23 2002

- Preparing for NARTE EMC Engineer and Technician Exams on Monday, 19 Aug
- NARTE EMC Exams on Friday, 23 Aug

ESD/EOS Society Symposium

Charlotte, NC, October 6-10, 2002

NARTE Board of Directors Meeting

Camden, ME, Saturday, October 5, 2002

A special membership meeting will be held in order to vote on NARTE Bylaws updates.

For more information on coming events; including training courses and symposia, visit the "What's New?" page at www.narte.org or call 1-800-89-NARTE.

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Interference Among the Dinosaurs of Radio

This is the eighth in a series titled Jurassic Telecommunications that began by describing the late Victorian, non-electronic roots of modern telecommunications. This article discusses how interference was a problem from the very beginnings of practical radio.



Cornwall

Inset Top: The Cornwall area in southwest England addressed in this article.



Inset Bottom: Cornwall map detail showing various cities and points of historical telecommunications interest in Cornwall, including Lands End, Mounts Bay, and Lizard peninsula.

Ever since making a technology pilgrimage to Cornwall in England, a question puzzled me. Two of England's major telecommunications technology giants grew within a half-dozen miles of each other, on opposing shores of Mounts Bay. Yet they seemingly only squinted at each other over that body of water. I wondered why, in such close proximity, they had worked separately in these early, developmental days of radio.

(By way of historical saturation, add to those two—all in the same geographically small landfall—the modern Goonhilly Downs Satellite Earth Station, the landing points of two modern transoceanic fiber optic cables, a Victorian lighthouse and manifold assorted history tidbits of prehistoric, Bronze Age, Iron Age, medieval and Industrial Era origin, plus the world famous Lands End, and myriad tourist venues; and you have a full plate for tourist meanderings in only *three dozen miles*.)

First Radio Company to Land in the Victorian British Empire

The earliest of our selected two “Jurassic” radio giants, England's globe-spanning Eastern Telegraph and Extension Companies, gave the Victorian British Empire what was arguably the Original Internet, with its central base in the craggy little valley called Porthcurnow. This was scarcely three miles from Lands End, but far enough off the main A30 highway such that millions of tourists have missed it.

Operations at Porthcurnow date to 1870, in a place and time before central electric power plants or electric lights. Imagine working with an electrical technology in which the lights were oil or gas, with primary cell batteries for the only electrical power, communicating with the opposite side of the Earth!

In that environment, Eastern Telegraph had built a financially ebullient business venture that fended off direct competition and government attempts at takeover. It feared no innovators of technology, either.

Then Along Came Marconi

The second radio giant then entered the area, just a dozen miles across Mounts Bay, as an indirect competitor. It was Marconi, who had already fought several battles to get his new wireless technology accepted. In that all too classic way of the world, governments and industries at first scoffed at Marconi. Then as he proved his technology functional, they began to envy and even covet it.

Along the way, Marconi had been forced to discover the value of wireless to ships at sea, when the British government essentially monopolized domestic telegraphy from under his nose. That led to the early establishment of Marconi Marine, which fitted many ships of the world from the earliest days of “wireless telegraphy.”

But, finding he needed a broader revenue base, Marconi hit upon the notion to compete with the by then very wealthy submarine cable companies.

His first target was not England's Eastern Telegraph to Africa, Asia and Oceania. Rather, he aimed to compete with the transatlantic Anglo-American Telegraph, which at the time operated from its original base at Valentia Island, County Kerry, in Ireland.

He needed to build what, in 1901, was a “superpower” transmitter of approximately 25 kilowatts. (Actually, in the details of history, one finds the infant Marconi Company was so strapped for cash that 25 kilowatts was all they could afford; purchasing a used generator at that.) The installation was at Poldhu, on a high grassy cliff near the town of Mullion on the Lizard peninsula, a clear water path from Porthcurnow.

Then Came the Lawyers and Magicians

Within 24 hours of Marconi advising his December 12, 1901 transatlantic success back to Poldhu via the Anglo-American submarine cable, he was handed a letter. The note advised him to cease and desist because Anglo-American held an exclusive license to communicate abroad from Newfoundland. This caused Marconi to embark immediately to Nova Scotia, where he then built his first Canadian station.

Marconi was not an immediate direct competitor of Eastern at Porthcurnow. Eastern and its chairman maintained a nonchalant face at Marconi's success. But there was still activity at Eastern to maintain an eye on the upstart.

There could not be a much better watchpoint than on the cliffs surrounding Porthcurnow across Mounts Bay. On a promontory that came to be called “Wireless Point,” a tall mast was erected in July, 1902; supporting an aerial which could have no purpose but to perform the world's first radio intercepts.

Eastern even hired a magician of some note, one John Neville Maskelyne, to advise on the operation. Maskelyne was a dual success. He was a Victorian inventor of significant ability, with items like a cash register and a typewriter that contributed its name to British business jargon, the Maskelyne. His 19th century typewriter featured proportional spacing, something no other had until IBM's electric typewriter with proportional spacing in 1940. He was also a personal success at stage magic, running a very popular show that unmasked and debunked claimants to magical abilities.

Thus, it would appear Eastern secured a consultant of considerable technological skill who could also credibly debunk Marconi as a myth. In a 1979 Cable & Wireless corporate history book mention, Maskelyne was asked to provide “conjectures” for the Porthcurnow interceptors to work with. Exactly what his “conjectures” were is at this point lost to us. However, the Cable and Wireless historian of 1979 speculated that interference to Marconi associate J. Ambrose Fleming’s demonstration at the Royal Institution in July, 1902 came from Wireless Point. The implication of the remark seems to be that Marconi was out there on the radio bands all alone, save for the Spies at Wireless Point. That’s not very likely.

First, July, 1902 was the very month the Wireless Point antenna mast had been erected.

Second, the “interference” was received at London, a sufficient distance to require a fairly powerful transmitter to reach from Cornwall. It’s doubtful Wireless Point had an excess of mains electricity in 1902.

Third, Marconi was not alone on the band in 1902. By then, there were literally dozens of credible sources of interference. These sources had been building since 1899, or even earlier.

Early Industrial Electronic Warfare

As Marconi created more and more public awareness of the utility and success of his conception, more and more interlopers stepped in to try for a piece of the action. A prime one arose from yet another competitor of the Anglo-American submarine cables across the Atlantic. Anglo-American was no doubt aware of Marconi’s relation to it, as well.

When one of America’s greatest newspaper entrepreneurs of the 19th century, James Gordon Bennett, Jr., found young Marconi reporting the positions of boats offshore Ireland in yacht races, he offered Marconi \$5,000, then a considerable sum, to do the same for the *New York Herald* at the 1899 America’s Cup races. This really raised American awareness, at both the public and competitive level. At repeat America’s Cup engagements in 1901 and 1903, competing wireless companies had sprung up and even had operators sending deliberate interference to block the Marconi reports for Bennett’s *Associated Press*.

In considering this, one must bear in mind that relatively narrowband continuous wave (CW) emission was virtually unknown at the turn of the century. Fessenden and Poulsen both sensed CW was necessary for voice transmission, but neither had actually transmitted what might be termed CW until 1902 and later.

What Marconi and others were using from 1899 until well into the 1900’s were a variety of spark transmitters—machines that radiated what was essentially man-made lightning; static limited only by the bandwidth of their antennae. And, the fundamental frequencies of these lightning bolts ranged from the VHF of Hertzian physics lab spark loops down to the audible region of Duddell’s “singing arc.” Between those extremes, other experimenters could be on most any frequency, including the one Poldhu was on.

As a matter of interest, it’s been credibly deduced that Marconi’s first transatlantic transmissions from Poldhu were in the vicinity of 820 to 850 kHz. The December, 1901 Poldhu antenna parameters seem to have formed a rather effective low-pass filter; therefore, it’s unlikely that significant amounts of HF energy were radiated that day. And, December 12, 1901 would seem to have been one of the most unlikely days for MF propagation across the Atlantic.

However, one must bear in mind that Marconi only heard occasional bursts of the transmitted “S” from Poldhu over a period of several days. He made no claim at all of steady, stable propagation at that time.

Tracing the history we read that, indeed, Marconi could not set up a regular public message service for hire for another 7 years, during which time he kept lowering the frequency (until finally

settling on 30 to 45 kHz and increasing power from that first 25 kW at Poldhu to 300 kW). It would not be a disservice to say that Marconi’s first success was a “freak transmission.”



Karl Ferdinand Braun, who shared the 1909 Nobel Physics Prize with Marconi.

No Frequency Management Controls

Meantime, all the others were also using whatever frequency their transmitters operated well at, as Marconi had done.

Indeed, Valdemar Poulsen’s 1904 recollection of his 1902 experiments indicated that he found 50 kHz most efficient for his arc converter, so that became Poulsen’s early frequency of choice.

Even Marconi’s 1909 Nobel Prize was a shared one, indicating someone else was “on the air.”

He shared his prize with Karl F. Braun of Germany. Many recognize Braun as the inventor of the cathode-ray tube, but Braun’s Nobel prize was

for adding the concept of loosely coupled antennae to radio transmitters and receivers, increasing their radiation efficiency. The combination simultaneously increased signal strength from the transmitter and reduced interference at the receiver. Indeed, some accounts indicate Marconi publicly admitted that he borrowed freely from Braun.

World-Wide Frequency Free-For-All

Almost every European nation now has its early hero of wireless to claim. In Russia, Aleksander Popov’s work paralleling Marconi’s was kept under wraps by the Russian Navy, cloaked under military secrecy. Some occasional savings of life and property due to Popov’s wireless in the first decade of the 20th century reveal that Popov indeed was also on the air.

In France, Ducretet was only slightly more public in his military role as an active experimenter with wireless. Germany also had Slaby, who had actually been dispatched to England as an official observer of Marconi’s early apparatus. Records show Slaby drew complaints from the German telephone company in the late 1890’s for causing RF interference. (Some radio engineers today will say that problem never has been solved. In fact, it has only become worse from interference with LANs; something many IT people keep re-learning by direct suffering.)

In the Americas, wireless experimenters by 1902 were starting to become too numerous to record. Nikola Tesla conducted numerous experiments; some with power levels even higher than Marconi could reach.

The Jurassic, Wireless Wilderness is Alive

So, back to the main thrust: Was the wireless “aether” of 1902 a pristine, uncluttered wide open space of electromagnetic equilibria just waiting for Marconi?

Not at all. It was a wild, untamed land containing the evolving dinosaurs of Jurassic Wireless Telecommunications. The first grunts, growls, and snarls were out there to be heard perhaps anywhere; perhaps anytime. ☹

Want to know more? Here are some web pages you can easily read:

1.) The Spies at Wireless Point:

<http://www.porthcurno.org.uk/PKhandbook/messageSea/Eavesdroppers.html>

<http://search.atomz.com/search/?sp-q=wireless&sp-a=000518cb-sp00000000>

<http://www.porthcurno.org.uk/museum/shop/bookA.html>

2.) Karl Ferdinand Braun:

<http://www.nobel.se/physics/laureates/1909/braun-lecture.html>

<http://www.antiquewireless.org/otb/forgoten.htm>

FCC Announces Formation of Spectrum Policy Task Force

Washington DC, June 6, 2002 - FCC Chairman Michael K. Powell has announced the formation of a Spectrum Policy Task Force to assist the Commission in identifying and evaluating changes in spectrum policy that will increase the public benefits derived from the use of radio spectrum. Dr. Paul Kolodzy, Senior Spectrum Policy Advisor, Office of Engineering and Technology, will head the cross-bureau and multi-disciplinary task force.

Chairman Powell said, "The government has an almost impossible task trying to keep pace with the ever increasing demand for spectrum and continuing advances in wireless technology applications. In this fast-moving world, the Commission cannot rely on outmoded procedures and policies. We must establish new ways to support innovation and the efficient, flexible use of spectrum.

While the Spectrum Policy Task Force has a difficult task ahead of it, I am pleased that it is making significant progress and that it is moving forward with a work plan."

The Spectrum Policy Task Force will be comprised of senior staff from several Commission Bureaus and Offices, including attorneys, engineers and economists.

The Deputy Director of the Task Force is Lauren M. Van Wazer, Special Counsel to the Chief, Office of Engineering and Technology. Dr. Michael Marcus, Associate Chief for Technology, Office of Engineering and Technology, will serve as Senior Technical Advisor and Maureen C. McLaughlin, Senior Counsel, Office of General Counsel, will serve as Special Counsel to the task force.

The Task Force will receive its guidance from a steering committee composed of the Bureau/Office Chiefs to whom its members report and chaired by the Senior Spectrum Policy Advisor.

For additional information on the Spectrum Policy Task Force, please visit the Task Force website at www.fcc.gov.sptf.

Software Defined Radios— The New Wave of Communications Technology

by Fred Frantz

Dramatic developments are coming that will revolutionize the way public safety agencies can communicate—software defined radios (SDRs). The FCC sees great potential in SDR, commercial wireless companies are developing SDR capabilities, and the U.S. military is procuring SDRs for operational use. SDR technology, with its tremendous potential and inherent challenges, is rapidly becoming mainstream public safety communication.



WHAT IS AN SDR?

One definition is a radio that includes a transmitter whose operating parameters can be altered by changing software, after the radio is deployed in the field, without changing the hardware associated with the generation, control and amplification of the desired emissions. Frequency range, modulation type, radiated or conducted power, or other signal processes that affect undesired emissions can be changed in software. SDRs enable greater interoperability, efficiency, flexibility in spectrum utilization, flexibility in linking personnel and agencies, and flexibility in the types of communications being transmitted.

HOW DOES THIS AFFECT PUBLIC SAFETY?

First, today's radio products for public safety are already software programmable to some degree, with more SDR features added yearly - SDR is on your doorstep. Second, there are key issues currently being considered by SDR developers and the FCC, such as control, field modifications to radios, third-party software, compliance, and security. In September, 2001, the FCC issued their First Rule & Order on SDRs, which defined rules to allow software modifications to be made in an SDR, and to allow equipment to be relabeled in the field when new approval is obtained by a third party for a previously approved device. Additional FCC actions are anticipated.

NIJ (National Institute of Justice) through the AGILE (Advanced Generation of Interoperability for Law Enforcement) program, funded grants over the past three years to develop SDR technology for public safety. These grants have helped to identify public safety requirements for SDR, yet more work is needed to ensure that the development and regulatory community understand and react to those requirements. The NPSTC (National Public Safety Telecommunications Council) Governing Board is developing a plan to work with NIJ and the SDR forum to accomplish these objectives - stay tuned for more information on how these objectives will be met.

The AGILE Program is a program within the NIJ that focuses on interoperability for public safety. Fred Frantz works on the AGILE Team through the National Law Enforcement Corrections Technology Center (NLECTC) - Northeast Region in Rome, NY. Forward comments or questions to Fred Frantz at fred.frantz@1-3com.com

Article printed courtesy of Spectrum, a quarterly newsletter of the NPSTC, published by the NPSTC Support Office, 800-416-8086.

What's @ www.narte.org?



We asked you:
Are Ethics a problem in professional and craft practices?
You answered: YES 60% NO 40%

90% surveyed would report an ethics breach whether or not it effected them personally.

As NARTE Celebrates our 20th year, we ask you to reflect on this question:
What has been the most important development in Telecommunications in the past 20 years?

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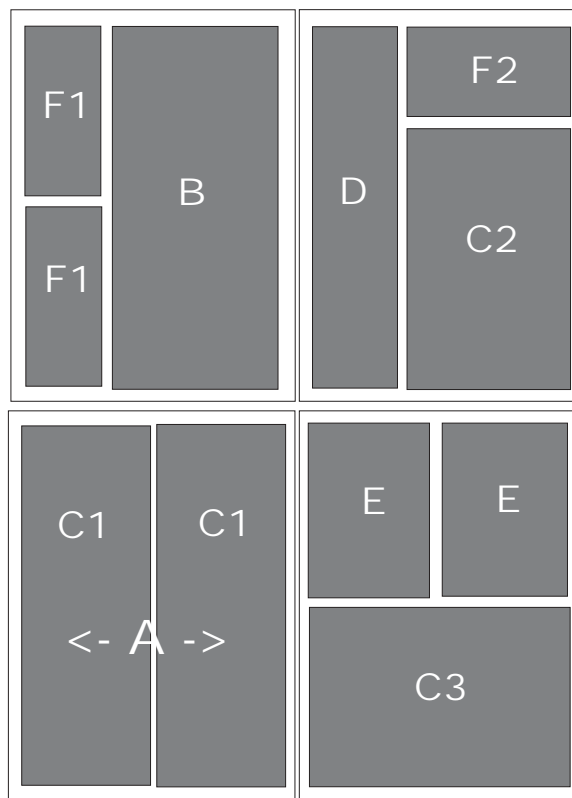
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